

XLII.—*South African Species of the Genus Hypolithus, Dejean.* By C. N. BARKER, F.E.S. (of the Durban Museum).

OF all the Carabidæ the Harpalini are perhaps the most difficult, and the species of the genus *Harpalus*, on account of their numbers, their similarity of facies, and the wholly insufficient descriptions of those that have been published, are quite impossible of satisfactory treatment by anyone who has not access to the scattered types for comparison.

The genus *Hypolithus*, however, although it includes a fair number of species, and doubtless there are many more yet to be found, has a less extended range, being principally confined to the eastern side of our subcontinent, and on that account they are better known to me. Of the considerable number described by Dr. Péringuey, most of them were collected by my friends the Rev. J. A. O'Neil and Dr. G. A. K. Marshall, and some by myself; co- or paratypes of all these are contained in the Durban Museum collection.

There is a good deal of sexual variation among some of the species, and it is therefore unfortunate that authors have omitted to state whether both sexes or which sex is represented in their descriptions.

In addition to eight new species described by me below, there are individual examples of others that I have little doubt will later prove to be good species, but the characteristics of which are not sufficiently distinctive to be treated on such limited material. I have appended, however, some remarks on these beneath the headings of their nearest allies, which may prove useful for later reference. All types of species described by me are in the Durban Museum collection. The table given below I trust may prove of some use as a guide to the recognition of the species of this genus. It is compiled principally on the general facies of the insects, which, however, thus appear to group themselves on fairly natural lines. The transitions of one type into another is usually so gradual—in some cases almost imperceptible—that it is extremely difficult to find definitions for sections which satisfactorily express their distinctive characteristics, and with the best will I do not pretend to have succeeded otherwise than indifferently in my attempt.

Table of South African Species.

(Those marked with asterisk known to me by description only.)

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|---|--|--------------------------------|
| 1 | (18). Pubescent in both sexes. | |
| 2 | (9). Head and prothorax finely and densely punctate, the latter approximately of equal width at base and apex and ampliate medially. | |
| 3 | (4). Length $15\frac{1}{4}$ – $16\frac{1}{4}$ mm.; width $6\frac{1}{4}$ – $6\frac{1}{2}$ mm. Broad, black, subopaque; elytra narrowly striate, finely shagreened, pubescence dense, yellow. Antennæ piceous, terminal joints reddish and two first flavous; legs: femora flavous, knees, tibiæ, and tarsi darker. | <i>H. tomentosus</i> , Boh. |
| 4 | (3). Length 14– $14\frac{1}{2}$ mm.; width $5\frac{3}{4}$ –6 mm. Identical in shape and sculpture or latter a trifle coarser. Antennal joints and legs below knees darker, tibiæ and tarsi of posterior legs wholly black | <i>H. tetricus</i> , Pér.? |
| 5 | (3). Length 15–16 mm.; width $5\text{--}5\frac{3}{4}$ mm. Narrower, less opaque; prothorax more attenuated at base and apex; usually with narrow ferruginous margins; antennæ and legs unicolorous. | <i>H. porrectus</i> , Pér. |
| 6 | (3). Length 13 mm.; width 5 mm. Prothorax less plane, hind angles sharp, with no sinuation above the angles. Antennæ and palpi testaceous red, last joints of latter tipped with flavous. Legs black, except deep red coxæ and tarsi. Elytra obscurely iridescent, striæ deep, finely punctate, intervals convex, very faint seriate punctures on alternate intervals. | <i>H. mozambicus</i> , sp. n. |
| 7 | (6). Length $9\frac{3}{4}$ –12 mm.; width $3\frac{3}{4}$ – $4\frac{3}{4}$ mm. Black, very briefly and densely pubescent. Prothorax flatter, sides very little contracted to base, which is wider than apex; elytra subparallel, not much wider than base of prothorax †. Antennæ, palpi, margins of prothorax, and legs flavescens. Seriate punctures on alternate intervals faint, sometimes absent. Widely ranged with considerable local variations | <i>H. holosericeus</i> , Dej.? |
| 8 | (7). Length $9\frac{1}{2}$ –10 mm.; width $3\frac{1}{2}$ – $3\frac{3}{4}$ mm. Shape similar. Head black; elytra also black, with margins and macules | |

† A well-defined race of this species from Salisbury, S. Rhodesia, has the prothorax more contracted to base and the elytra less parallel, more oblong-ovate.

- on alternate intervals of dorsum flavescens; beneath piceous; antennæ, palpi, legs, and prothorax flavescens, the latter with an infuscate patch on the middle basal area *H. eschiri*, Dej.
- 9 (8). Length 12-13 mm., width 5 mm. Colour and pattern similar, infuscate parts of elytra iridescent (*vide* Trans. S. Afr. Phil. Soc. vol. viii. p. 432) **H. saponarius*, Oliv.
- 10 (15). Head and prothorax more remotely punctate, the latter short, widest above middle, more or less sinuately attenuated to base.
- 11 (12). Length 7-8 mm.; width $2\frac{1}{2}$ - $3\frac{3}{4}$ mm. Testaceous yellow; head, prothorax, and beneath darker, more reddish; two longitudinal vittæ (sometimes absent) on thorax, and a broad scutellar band from base, but not reaching apex, teneous black. Prothorax not much sinuately contracted to base, which is about as wide as apex. *H. audens*, Pér.
- 12 (11). Description (*vide* Annals S. Afr. Mus. vol. v. p. 277) agrees with that of "*audens*," except that the abdomen is stated to be black. A very doubtful species *H. cruentulus*, Pér.
- 13 (14). Length 9 mm.; width $3\frac{1}{4}$ mm. Black; elytra metallic blue-black; antennæ, palpi, prothoracic margins, and legs reddish testaceous. Head and prothorax moderately closely punctate. Obsolete seriate punctures on intervals 3 and 5 of elytra. Both sexes. *H. punctulatus*, Boh.
- 14 (13). Length $8\frac{1}{4}$ mm.; width $2\frac{3}{4}$ mm. Similarly coloured, much narrower and more depressed; prothorax more attenuated to base, subcordiform. Puncturation of head and prothorax deeper and more remote. Seriate punctures on intervals 3, 5, and sometimes on 7. Females only *H. tenuissimus*, sp. n.
15. Length $7\frac{3}{4}$ mm.; width 3 mm. Pale testaceous brown. Legs, antennæ, and palpi flavescens; head and prothorax metallic-glossed; elytra, except narrow margins and some tessellated spots of ground-colour, deep brown. Prothorax very short, subcordiform, hind angles acute. Puncturation of head and prothorax fine, dense. The proper place for this species is very doubtful, and no near allies are known to me. Two females only *H. strenuus*, Pér.
- 16 (25). Prothorax not or a little wider at base than at apex. Head and prothorax,

- except the basal depressions, smooth or very faintly aciculate; more or less brightly iridescent species.
- 17 (18). Length $9\frac{1}{2}$ mm.; width 3 mm. Black. Antennæ and palpi testaceous red, legs deep red, and the tibiæ piceous or darker red. Elytra parallel, striæ deep, intervals convex and densely aciculate-punctate; spaced punctures on intervals 3, 5, and 7. Two males only *H. optivus*, Pér.
- 18 (17). Length $7-7\frac{3}{4}$ mm.; width $2\frac{3}{4}-3$ mm. Prothorax shorter, elytra less parallel. Legs, palpi, and antennæ flavescens, joints of latter lineally maculated with black or nearly wholly infuscated. Elytral intervals less convex, shagreening finer, spaced punctures absent or obsoletely present on intervals 3 and 5. Several of both sexes. *H. imitativus*, Pér.
- 19 (22). Females pubescent, males glabrous.
- 20 (21). Length 9-10 mm.; width $3-3\frac{1}{2}$ mm. Black, brightly iridescent; antennæ, palpi, margins of prothorax, and legs flavescens to reddish testaceous. Prothorax gently rounded, little (one-quarter) wider than long, margins widely reflexed, hind angles rounded, striæ deep, intervals a little convex, finely shagreened, seriate punctures on intervals 3 and 5, rarely faintly on 7. All males *H. glaber*, Boh.
- 21 (20). Length $9-10\frac{1}{4}$ mm., width $3\frac{1}{4}-4$ mm. Identical with above in every respect, except that the elytra are briefly pubescent and the intervals between striæ plane. All females [of *glaber*, probably. *H. caffer*, Boh., female
- 22 (20-21). Length $9\frac{1}{4}-10\frac{1}{2}$ mm.; width $3\frac{1}{4}-3\frac{1}{2}$ mm. Coloration identical. Differentiation of sexes similar to that of "*caffer*" cum "*glaber*." Prothorax similarly shaped, but more transverse and more convex at apex; elytral striæ finer, aciculation of intervals as fine but less dense, and quite plane in both sexes. Seriate punctures on third, fifth, and seventh *H. legitimus*, sp. n.
- 23 (41). Glabrous in both sexes.
- 24 (22). Length $8\frac{1}{2}-9\frac{1}{2}$ mm.; width $3-3\frac{1}{2}$ mm. Antennal joints above 3rd more or less infuscated; prothorax shorter, sides very gently and evenly rounded, and less narrowed to base, hind angles sharp. Seriate punctures on intervals 3 only *H. rivalis*, Pér.
- 25 (24). Length $8\frac{1}{4}-9$ mm., width $3-3\frac{1}{2}$ mm. Coloration the same, but elytra (♂)

obscurely, (♀) sometimes hardly perceptibly, iridescent. Prothorax more elongate, front angles more declivous, sides more briefly amplified and straighter to hind angles, which are obtusely right; margins of elytra more widely reflexed, puncturation less fine; seriate punctures conspicuous on intervals 3 and 5, rarely obscurely on 7

[= *ovampoanus*, Pér.
H. interstitialis, Boh.,

26 (33). Prothorax more distinctly wider at base than at apex; broader-sided species.

27 (25). Length $7\frac{3}{4}$ – $8\frac{1}{4}$ mm.; width 3 – $3\frac{1}{4}$ mm. Deep brownish-red head and dorsal parts of elytra darker, iridescent; legs, antennæ, and palpi testaceous yellow. Prothorax a little more transverse, similarly shaped, disc densely aciculate-punctate, lateral depressions and base more so. Elytra short, tapering to apex. Seriate punctures on intervals 3 and 5

H. patruelis, Pér.

28 (27). Length 10 mm.; width $3\frac{3}{4}$ mm. Black, very shiny; legs, antennæ, and palpi deep testaceous red. Head and anterior part of prothorax smooth, the latter a little convex, broad ($3\frac{1}{4}$ by $2\frac{1}{4}$), margins above the rounded hind angles broadly reflexed and impressed within. Puncturation of elytral intervals fine with distinct remote punctures on 3, 5, and 7. One female only

H. connexus, Pér.

29 (28). Length $8\frac{3}{4}$ mm.; width $3\frac{1}{2}$ mm. Piceous above, brightly glossed with metallic green; antennæ, mouth-parts, and legs pale testaceous yellow. Prothorax shaped like that of *interstitialis*, but broader and with posterior angles sharp, disc aciculate and nearly plane. Elytra short, parallel-sided, seriate punctures on intervals 3, 5, and 7, very distinct. One male only.

H. marshalli, sp. n.

30 (33). Prothorax plane above, gently, obliquely ampliate from below front angles, and hardly narrowed to base; elytra elliptic in shape.

31 (29). Length 11 – $11\frac{1}{2}$ mm.; width 4 mm. Black, very little shiny. Antennæ, palpi, and legs reddish testaceous. Head and prothorax densely aciculate punctate, the latter very transverse ($3\frac{1}{2}$ by $2\frac{1}{2}$), lateral basal impressions broad and shallow, hind angles briefly rounded. Elytra more elongate, tapering to apex; intervals plane, their puncturation fine and seriate,

- punctures on third and fifth only.
 One of each sex *II. differens*, sp. n.
- 32 (31). Length 11 mm.; width 4 mm. Black with a greenish iridescent tinge to elytra; legs and two first joints of antennæ flavous, the remainder of latter ferruginous. Juxta-sutural intervals of elytra convex and subcarinate. No seriate punctures on intervals (*vide* description, Trans. S. Afr. Phil. Soc. vol. vii. p. 435) . . . **II. integer*, Pér.
- 33 (31). Length $7\frac{1}{4}$ - $7\frac{1}{2}$ mm.; width 3 mm. Black, very shiny, faintly iridescent; legs, antennæ, mouth-parts, and margins of prothorax testaceous yellow. Prothorax: shape similar, more declivous at front angles, anteriorly faintly aciculate, lateral basal impressions densely punctulate. Shape of elytra similar, striæ fine, intervals broad and plane *II. dubius*, sp. n.
- 34 (38). Prothorax more abruptly amplified below front angles, obliquely and very slightly narrowed to base; base and apex about equal in width; elytra parallel-sided.
- 35 (36). Length $6\frac{1}{2}$ - $6\frac{3}{4}$ mm.; width $2\frac{1}{4}$ - $2\frac{1}{2}$ mm. Dark red-brown; legs, antennæ, mouth-parts, and margin pale testaceous yellow. Prothorax very transverse, more than $\frac{1}{3}$ wider than long; elytra more slender and depressed; aciculation and puncturation of prothorax and elytra coarser; spaced punctures on third, fifth, and seventh intervals. Many of both sexes . . . *II. castaneus*, sp. n.
- 36 (35). Length $6\frac{1}{2}$ - $7\frac{1}{2}$ mm.; width $2\frac{1}{2}$ -3 mm. Black, with prothorax and head piceous, the former suffusedly testaceous-margined. Legs testaceous yellow, antennæ a shade deeper. Elytra more or less iridescent. Prothorax similar, a trifle wider, aciculation and puncturation finer. Elytra elongate, as broad as base of prothorax, striation and puncturation less coarse; seriate punctures similarly placed. Many of both sexes . . . *II. propinquus*, sp. n.
- 37 (36). Length $6\frac{3}{4}$ mm.; width $2\frac{1}{2}$ mm. Black, elytra iridescent; margins of prothorax, elytra, and suture of latter for a short distance above apex yellowish to reddish testaceous. Prothorax as in "*castaneus*" a little less wide. Sculpture a little finer, seriate punctures similarly disposed. One male and one female *II. turbatus*, Pér.?

38. Length $6\frac{3}{4}$ mm.; width 3 mm. Black, shiny, smooth; beneath obscurely ferruginous; antennae, palpi, and legs testaceous yellow; prothorax wide, margined with testaceous, etc. (*vide* p. 201, *Insecta Caffraria*, Boheman). Dimensions as given above differentiates it from any *Hypolithus* known to me, otherwise hardly separable from *propinquus* **H. melancholicus*, Boh.
- 39 (41). Head relatively smaller, less retracted within thorax, oblong-ovate, convex species.
- 40 (41). Length 7 mm.; width 3 mm. Black, very iridescent, rarely not so; legs testaceous yellow, tibiae and tarsi a shade darker; antennae flavous with all joints, except two first, lined above with fuscous. Spaced punctures faintly defined on third interval or absent *H. difficilis*, Pér.
- 41 (40). Length $7-7\frac{1}{4}$ mm.; width $2\frac{3}{4}-3$ mm. A trifle less ovate; prothorax similar, but with posterior angles acute instead of rounded. Dark metallic green, iridescent; elytra with a short posterior sutural and lateral yellow band *H. scitus*, Pér.
- 42 (41). Length 12 mm.; width $4\frac{1}{2}$ mm. Description, *vide* Trans. S. Afr. Phil. Soc. vol. viii. p. 437. Markings and coloration appear to be like those of "*scitus*," but it is a much larger insect. Quite unknown to me **H. ornatus*, Pér.

Hypolithus holosericeus, Dej., and *H. marginicollis*, Boh.

Péringuey (Trans. S.A. Phil. Soc. vol. vii. p. 434) states that he cannot differentiate the former from the latter, though he admits that "*Holosericeus*" is a little larger. He gives the following as the dimensions of his "*holosericeus*":—Length 11–13 mm., width $4\frac{1}{2}-5$ mm. Boheman for his "*marginicollis*" gives 12×5 mm. The species determined for me by Dr. Péringuey many years ago as *H. holosericeus*, Dej., is a much smaller insect than the above, ten examples, including both sexes, range from $9\frac{3}{4}-11$ mm. long by $3\frac{3}{4}-4\frac{1}{4}$ mm. wide, and only one female example attains the maximum of 11 mm.

As I am not in a position to compare this race with Dejean's "*holosericeus*" and Boheman's "*marginicollis*," I am giving below a description of it, which in addition to its deficiency in size shows some further minor differences.

Hypolithus holosericeus, Dej.?

Above piceous, obscurely iridescent, densely clothed with very short, pale yellowish pubescence. Head black, shiny; antennæ, palpi, and labrum reddish yellow, the latter more or less infuscate basally. Legs flavescens. Prothorax: margins laterally, usually at apex and base medially, and the epipleuræ red. Beneath piceous to piceous red.

Head hardly convex, short, transverse, densely and very finely punctate, frontal impressions, on either side, slight and transverse groove narrow.

Prothorax very broad ($3\frac{1}{2}$ by $2\frac{1}{8}$ mm.), wider at base than at apex, the former truncate, shallowly emarginate medially, the latter broadly emarginate, its angles rounded, moderately declivous; sides gently amplified to middle, very little contracted to the sharply-rounded hind angles; disc hardly convex, finely, densely, and evenly punctate, median groove very short, reaching neither apex nor base, lateral basal impressions broad, shallow.

Elytra hardly wider at base than base of prothorax, very little widened immediately below shoulders, sides straight to beyond middle, gently rounded to and sinuate before apex, hardly convex above, shortly pubescent and obscurely iridescent, moderately deeply striate, intervals plane, finely shagreened, third, fifth, and seventh with obsolete spaced punctures, but sometimes wanting.

Beneath smooth, shiny, impunctate.

Hab. Natal Coast districts. A common species.

A well-marked race of the above occurs at Salisbury, S. Rhodesia, the size of which averages a trifle more ($10-11\frac{1}{2}$ by $3\frac{3}{4}-4\frac{1}{2}$ mm.). It differs as follows:—puncturation of head and prothorax a little coarser and less dense, the latter less transverse, the sides more contracted to base, which is therefore considerably less wide than the elytra at base; the elytra (especially in the females) are elongate-ovate, instead of parallel as in both sexes of the Natal race, and the puncturation of the elytral intervals is less fine and the pubescence a little sparser.

Hab. Salisbury, S. Rhodesia. Collected by the Rev. J. A. O'Neil.

Since writing the above, I have received from Delagoa Bay a female example, which in size (12 mm. long by $4\frac{3}{4}$ mm. wide) agrees almost exactly with Boheman's dimensions for his "*marginicollis*." It is proportionately as transverse as the Natal coastal race, but the puncturation of the head and prothorax is coarser, like that of the South Rhodesian race.

It differs from both these races in having the knees, tibiæ, and tarsi, and all the joints of antennæ, on the upper sides, excepting the two first, darkened or browned. The femora and first two joints of antennæ are pale flavescent. These slight differences of coloration are analogous to what occurs between *H. tomentosus*, Boh., and *tetricus*, Pér., referred to below.

Hypolithus tomentosus, Boh., race *tetricus*, Pér.

Three examples of "*tetricus*" (one male and two females) from the place of their origin, Salisbury, S. Rhodesia, agree exactly with the author's description, except in size, which ranges from 14 by $5\frac{3}{4}$ in the male to $14\frac{1}{2}$ by 6 mm. in the females. The dimensions given by Péringuey are $12\frac{3}{4}$ by $5\frac{1}{2}$ mm. *H. tomentosus*, Boh., varies considerably individually in the depth of coloration of the antennæ and the tibiæ and tarsi of the legs. The tibiæ and tarsi are always a shade darker than the femora, and the inner edges of the former and the whole of the latter of the intermediate and posterior legs are always more or less infuscated. In "*tetricus*" the same rule applies, but in a more extreme degree; the knees, tibiæ, and tarsi of the posterior (sometimes also of the intermediates) being wholly black, those of the other pairs being more or less infuscated with black.

The difference in puncturation and pubescence is of the slightest, and the shapes are identical.

There is nothing that I can conceive that justifies the acceptance of "*tetricus*" other than a geographical form or race of Boheman's *tomentosus*.

Hypolithus mozambicus, sp. n.

Length 13 mm.; width 5 mm.

Black, with very short pale pubescence and obscurely iridescent. Antennæ and palpi ferruginous, the terminal joints of the latter tipped with flavous. Legs black, except coxæ and tarsi, which are piceous red.

Head transverse, shiny, aciculate-punctate, frontal foveæ on either side deep, transverse line fine.

Prothorax transverse ($4\frac{1}{2}$ by 3 mm.), base wider than apex, the former in the middle shallowly, the latter broadly emarginate, frontal angles roundly produced, moderately declivous, sides gently ampliate to middle, thence very little inwardly inclined to posterior angles, which are bluntly right, disc a little convex, finely subconfluently punctate, median line short interrupted above by well-defined arcuate

transverse groove, lateral basal depressions broad, shallow, reaching base.

Elytra: width at base about equal to base of prothorax, truncate, very little amplified below shoulders, sides nearly straight and parallel to beyond middle, thence gently rounded to and a little sinuate before apex, the margins broadly and deeply reflexed, above punctate-striate, intervals convex, subcostate above apical declivity, very minutely shagreened, small seriate punctures on the third, fifth, and seventh, numerous and more closely set posteriorly, space within reflexed border very roughly sculptured towards apex.

Underside very shiny and iridescent, pectus and abdomen aciculate, metepisterna and pleuræ coarsely remotely punctate.

A very distinct species with no very near ally known to me. The shape of the prothorax is similar to that of "*tomentosus*," but is less plane above, and there is hardly a trace of sinuation above the hind angles, which are also sharper. The punctate striæ, the subcostate intervals, the closely-spaced punctures above the posterior declivity, and the deeply-reflexed margins are all very distinctive features of this species.

Hab. Inhambane, Portuguese E. Africa. Collected by A. Bodong. Described from a single female example.

Hypolithus tenuissimus, sp. n.

Length $8\frac{1}{4}$ mm. ; width $2\frac{3}{4}$ mm.

Black above, deep red to piceous beneath, pubescent. Legs, antennæ, palpi, and margins (narrowly) of prothorax flavescient. *Elytra* with a metallic-blue sheen in certain lights ; the suture for some distance above apex, the lateral margins, and the pygidium testaceous red. Base of the mandibles, epistome, and labrum red to piceous red.

Head and prothorax coarsely, a little remotely punctate, sparsely covered with a rather long yellowish pubescence ; neck smooth, glabrous.

Prothorax truncate at apex, frontal angles much depressed, sides amplified rounded for about one-third their length, thence obliquely and straightly drawn in to base, which is about one-fourth less wide than the apex, posterior angles rounded, median groove broad and deep, lateral depressions shallow, a little more densely punctate than rest of the surface.

Elytra at base truncate, about one-third wider than base of prothorax ; shoulders squarely rounded, sides elongate,

parallel, briefly rounded to and a little sinuate before apex, depressed above, covered with a longish yellow pubescence, striae well defined but not deep, intervals plane, densely and finely punctulate, seriate punctures faintly indicated on third, fifth, and sometimes on seventh intervals.

Underside subopaque, more or less aciculate-punctate, abdomen very sparsely pubescent.

Nearly allied to *H. punctulatus*, Boh., but more depressed and much more slender. The prothorax more contracted to base.

Hab. Salisbury, S. Rhodesia. Three females received from the Rev. J. A. O'Neil. Male at present unknown to me.

I have a single example (female) of a distinct species, near to *puncticollis*, Boh., and *tenuissimus*, mihi, from Salisbury, S. Rhodesia, Rev. J. A. O'Neil. In contour it is nearest to the former, though smaller ($7\frac{1}{2}$ by $3\frac{1}{2}$ mm.) and a little more ovate. The puncturation of prothorax is closer and nearly as coarse as that of "*tenuissimus*." The colour is deep chestnut (elytra darkest), with an æneous sheen and covered with a yellowish pubescence.

Hypolithus audens, Pér., and *H. cruentulus*, Pér.

The description of *H. cruentulus*, Pér. (*vide* Ann. S. Afr. Mus. vol. v. p. 277), from Salisbury, S. Rhodesia, agrees fairly well with the same author's description of *H. audens*, Pér. (*vide* Trans. S. Afr. Phil. Soc. vol. ix. p. 348), collected by me on the Natal Coast, and I have every reason to believe they are one and the same species. I have received from Salisbury many specimens of what undoubtedly are *H. audens*, Pér., which do not even show any local variation from those taken in Natal.

Dr. Péringuey describes the pectus of "*audens*" as piceous and the underside of "*cruentulus*" as black. Neither of these descriptions is quite correct for the specimens, be they from Natal or Rhodesia, that have passed through my hands. Some are darker than others, but all may be described as dull reddish beneath, more or less clouded with fuscous between the abdominal segments. With the exception of one from Natal and two from Rhodesia, all my specimens have on either side of the middle line of the prothorax a longitudinal infuscated vitta and in one very dark specimen these bands are sufficiently widened to nearly coalesce, and the dorsal area of the elytra has a distinct greenish æneous sheen.

Hypolithus caffer, Boh., and *H. glaber*, Boh.

I owe it to the suggestion of Mr. H. E. Andrewes, a well-known authority on Oriental Carabidæ, my present conviction that *H. caffer*, Boh., and *H. glaber*, Boh., are the sexes of one and the same species, the former being the female of the latter. Both of these have a wide South African range, and, to the best of my knowledge, in those places where the one occurs the other is also found, and only males of "*glaber*" and females of "*caffer*" are on record.

In shape and sculpture they are alike, except in those slight details which are usual between the sexes; but the elytra of "*caffer*" are pubescent, those of "*glaber*," as its name implies, are not so, and this naturally gives them a different appearance. There are, however, in fresh specimens of "*glaber*" some sparsely distributed hairs about the posterior margin.

A very nearly allied species, which I am describing below under the name "*legitimus*," sp. n., shows identically similar sexual differentiation.

Hypolithus legitimus, sp. n.

Length $9\frac{1}{4}$ – $10\frac{1}{2}$ mm.; width $3\frac{1}{4}$ – $3\frac{1}{2}$ mm.

Black; elytra very iridescent; piceous to piceous red beneath. Legs, antennæ, and palpi testaceous yellow; labrum and margins—narrowly—of prothorax, and the epipleuræ of elytra deep red; elytra of males (except for a little sparse pubescence about the posterior margins) glabrous, of the females briefly pubescent*.

Head smooth, glabrous, very convex in the posterior part, frontal foveæ inconspicuous.

Prothorax transverse (σ $2\frac{3}{4} \times 2$), anterior part smooth or obsolescently aciculate, shallow basal depressions densely aciculate-punctate, front shallowly bisinuate with the median part convex, angles obtusely prominent, sides amplified, widest about middle, nearly evenly rounded from apex to the rounded posterior angles; base a little wider than apex, median line short, intercepted above by the usual transverse arcuate sulcation, the space between it and the front margin distinctly raised to meet a corresponding convexity of base of head.

* One female in my possession is as devoid of pubescence as the average male.

Elytra very little wider at base than base of prothorax, briefly amplified below shoulder, thence nearly straight to beyond middle and gently rounded to apex, striæ very fine, hardly deeper in male than in female, intervals quite plane, very iridescent, minutely and densely aciculate-punctate; conspicuous spaced punctures on third, fifth, and seventh intervals.

Very nearly allied to "*H. caffer*" cum "*glaber*," Boh., but differentiated as follows:—

Prothorax nearly similar in outline, but more transverse and less contracted to base; posterior part of head and the central frontal part of prothorax conspicuously more convex, and the front angles of the latter more prominent. *Elytra* relatively shorter, striæ less deep, especially noticeable as between males. Seriate punctures as conspicuous on seventh as on the other intervals.

Description taken from two males and three females.

Hab. Malvern, Natal, collected by the author. Up to now, I have taken it at or received it from this locality only. *H. glaber* cum *caffer* also occurs at Malvern as in other places.

Hypolithus rivalis, Pér.

The co-type (male) of this species (*vide* Ann. S. Afr. Mus. vol. v. p. 279) belonging to the Durban Museum Collection is before me, and I find that in some minor details it differs from the author's description. Referring to the remote punctures, so often present on some of the elytral intervals, the description says "*insterstitiis tertiis quinq[ue] punctis majoribus seriatis nullis.*" The co-type has shallow but distinct punctures on the third intervals. No mention is made of the extreme fineness of the striation and puncturation of the elytra, which is even finer than that of *legitimus*, *mili*, and *glaber*, Boh., and in the brightness of the iridescence it is only equalled by the males of these two species.

To this species I have tentatively assigned two female specimens collected by me on the Pungwe River, Mozambique, which agree exactly with the male co-type in shape of the prothorax, which in this species is very short and broad (a full 3 mm. wide by $2\frac{1}{4}$ mm. long), and they also have the hind angles subacute; further the seriate punctures of the elytra are limited to the third intervals only. They are, however, a little smaller and less parallel-sided, and the striation and puncturation are a trifle deeper and coarser.

Two further specimens, a male from Nkusi River, Zululand, and a female taken at light, Durban, appear to be the sexes of another distinct species, which have the prothoraces shaped exactly as in "*rivalis*." The dimensions of the male are 10 mm. by $3\frac{3}{4}$ mm. and of the female 9 mm. by $3\frac{1}{2}$ mm. The head is, however, more massive, with more conspicuous frontal foveæ and transverse sutures. The sides of the elytra, especially in the male example, are less parallel and taper more to apices, as in "*connexus*" and other species that follow. The seriate punctures are limited to the third intervals as in *rivalis*, but the striation and puncturation are deeper and coarser. Their coloration is black, faintly iridescent in the female, but not in the male example. Antennæ, palpi, and legs are lighter testaceous yellow, especially the femora of the latter, which are pallid. It is, however, I think, inadvisable to name and describe these on such limited material and coming as they do from different localities.

Hypolithus imitativus, Pér.

H. imitativus, Pér., appears to be a fairly common species in the neighbourhood of Salisbury, S. Rhodesia, the only place I have so far received it from. Specimens vary a good deal in size, and the pubescence, which in fresh specimens is dense, is often so much rubbed off as to be only perceptible in a few isolated spots about or near the margins. The antennæ also vary much in the amount of infuscation. Some examples only show inconspicuous linear macules, whilst others have their joints beyond the three first almost wholly infuscate. In the specimens before me (two males and three females), the males are a trifle larger and have the antennæ only finely lined with black; the females have these joints wholly infuscate, except at the intersection of the joints. Whether this may be a sexual distinction or simply accidental we must await the result of examination of larger series to determine. Seriate punctures on the intervals of the elytra are absent in all but one male example, in which they are faintly indicated on the third and fifth.

Hypolithus interstitialis, Boh., and *H. ovampoanus*, Pér.

Two specimens received from Mr. (now Dr.) G. A. K. Marshall as paratypes of *H. ovampoensis* (= *ovampoanus*, Pér., *vide* p. 348, vol. ix. Trans. S. Afr. Phil. Soc. 1898), at about the same time the description was published, are

inseparable from specimens of *H. interstitialis*, Boh., as interpreted by me. *Interstitialis*, Boh., is about the commonest *Hypolithus* we have in or about Durban, and these specimens do not differ in the slightest from those received from Salisbury as *ovampoensis*, Pér.* Boheman in his description of *interstitialis* does not mention any iridescence being present, but this is a very variable factor in many species, and in this one it is never very conspicuous, though usually present.

Péringuey compares his *ovampoanus* with his *patruelis* thus: "sides of prothorax not so parallel there is no trace of punctures on seventh interval in *patruelis*."

The two specimens before me labelled *ovampoensis* have prothoraces exactly similarly shaped to those of *patruelis*, and the seriate punctures on the seventh intervals are also wanting. However, in some examples of *interstitialis*=*ovampoanus* these punctures are present. The incidence of these punctures (although helpful) is not very reliable, as variations in this respect are shown in individuals of several species of this genus.

Hypolithus marshalli, sp. n.

Length $8\frac{3}{4}$ mm.; width $3\frac{1}{2}$ mm.

Piceous red, brilliantly glossed with metallic green on the upperside. Antennæ, palpi, and legs testaceous yellow; labrum, margin of epistome, mandibles, and reflexed border of prothorax reddish testaceous.

Head and prothorax very shiny, the former densely faintly aciculate, frontal foveæ and transverse suture shallowly defined. Anterior part of prothorax densely aciculate, base and sides very densely and finely punctate, median groove deep, not quite reaching apex or base, basal depressions shallow and inconspicuous, apex narrowly raised in the middle, a little sinuate on either side and with front angles very broadly rounded; sides gently ampliate to about middle, thence, except for a very slight sinuation immediately above, straight to posterior angles, which are sharply right; base a little wider than apex, truncate, very slightly emarginate medially.

Elytra short, base of equal width with that of prothorax, truncate, angles sharp, hardly widening below; sides parallel to posterior declivity, rounded to and sinuate before apices,

* *Sic*, as received by me, but published "*ovampoanus*."

which are subacute; depressed above, moderately deeply striate, intervals, except about posterior declivity, plane and densely punctulate; very distinct seriate punctures on intervals 3, 5, and 7, and the space between eighth stria and reflexed border coarsely sculptured.

Underside very deep red, shading to red about middle of abdomen and metasterna, glabrous and smooth, except for some remote punctures on meso- and metasternal parts.

The shape of the prothorax is not unlike that of *H. connexus*, Pér.; it is equally transverse, the front angles are a little more depressed and the hind angles sharp instead of rounded.

The metallic-green lustre is present on head and prothorax, as well as on the elytra, which differentiates it from other species in which an evanescent iridescence is present on the elytra only. Being so distinct a species, I have ventured to describe it from a single male example.

Hab. Marandella, Rhodesia (*G. A. K. Marshall*, 1897).

Hypolithus differens, sp. n.

Length $11\frac{1}{4}$ mm.; width $4\frac{1}{4}$ mm.

Black, moderately shiny above, dark red to piceous beneath; legs, antennæ, palpi, labrum (centre infuscate), and prothoracic margins (narrowly) reddish testaceous.

Head finely, densely aciculate-punctate, shiny, frontal depressions shallow, transverse suture fine.

Prothorax very transverse ($3\frac{3}{4}$ by $2\frac{1}{4}$ mm.), front bisinuate, angles produced, briefly rounded, sides very gently amplified to middle, thence straight and hardly narrowed to posterior angles, which are obtusely right; base much wider than apex, very shallowly emarginate in the middle, disc nearly plane, moderately declivous frontally, densely, finely punctulate, median line short, sides above and base broadly shallowly impressed, densely rugosely punctate; reflexed margins narrow.

Elytra of nearly equal width with prothorax at bases, shoulders subquadrate, briefly rounded, very briefly amplified below, thence a little obliquely inclined to beyond middle and gradually rounded to and slightly sinuose before apex; hardly convex above, striæ fine, intervals broad and quite plane, moderately densely but not confluent punctulate, numbers three and five with distinct seriate punctures.

Judging by description (*vide* Trans. Phil. Soc. vol. vii. p. 435), it is very nearly related to *H. integer*, Pér. The following are points upon which they appear to differ:—

H. integer.

Black, with faint greenish iridescence.

Two basal joints of antennæ flavous, remaining joints ferruginous.

Three juxta-sutural intervals of elytra slightly convex and very slightly carinate. No seriate punctures.

H. differens.

Black, no iridescence, margins of prothorax testaceous red. Unicolorous testaceous red.

All intervals wide and quite plain in both sexes. Seriate punctures on intervals 3 and 5.

These differences taken apart are not of much importance, but together, I think, justify the acceptance of "*differens*" as a species distinct from "*integer*." Description from two examples, male and female.

Hab. Field's Hill, Natal; Durban.

I have two species allied to "*differens*," *mih*i, which, judging by individual examples in my possession, show the same broad depressed facies as "*differens*," but are undoubtedly distinct from it and from one another. This section of the genus has, probably, many closely allied forms yet to be described, which will require careful examination and comparison of the sexes to justify their publication as new species.

The first of those referred to above is a female taken at light in Durban. It is 10 mm. long by barely 4 mm. wide. Compared with the female of *differens*, the prothorax is a little less arcuate, more deeply, less densely punctulate, and the elytra are more parallel, the striæ and puncturation are coarser, and there is a distinct greenish-teneous tinge, instead of being subopaque black. There are very distinct seriate punctures on the third and fifth and two punctures below the shoulders of the seventh. The same differences that oblige me to separate "*differens*" and "*integer*" apply in this species.

A second species, also a female, captured by the Rev. J. A. O'Neil at Salisbury, S. Rhodesia, has the following dimensions: $9\frac{1}{2}$ mm. long by $3\frac{1}{2}$ mm. wide. The prothorax is less transverse, the sides similarly rounded but a little more contracted to base. Head and prothorax have a faint greenish-teneous sheen; the elytra is elliptical in shape and obscurely iridescent; the striation and puncturation are similar and the intervals equally plane, but the seriate punctures on the third and fifth intervals are more spaced and much more distinct. The colour of the antennæ, palpi, and legs is paler testaceous yellow, especially the last.

Hypolithus dubius, sp. n.

Length 7-7 $\frac{1}{2}$ mm.; width 2 $\frac{3}{4}$ mm. (σ \textasciitilde \textasciitilde).

Black, shining glabrous, obscurely iridescent; beneath ferruginous. Antennæ, palpi, labrum, mandibles (basally), and legs (brighter) testaceous yellow. Lateral margins of prothorax, medial parts of apex and base, scutellum, and lateral and apical margins of elytra testaceous red.

Head hardly perceptibly aciculate, very shiny, frontal and transverse grooves shallow and very fine.

Prothorax: front a little convex in the middle, shallowly depressed on either side between centre and angles, the latter rounded, not prominent, sides obliquely amplified to a little beyond middle, thence straight to posterior angles which are obtusely right; lateral margins anteriorly narrowly grooved and reflexed, more broadly and shallowly towards base; base wider than apex, medially broadly and shallowly emarginate; disc finely aciculate, a little rugulose frontally, more densely and rugosely punctate about basal area; median line short and basal depressions shallow.

Elytra at base hardly wider than prothorax, a little and gently amplified for some distance below shoulders, thence obliquely narrowing or tapering towards and hardly sinuate before apex; above deplanate, very shiny, finely striate, intervals quite plane, closely aciculate-punctate. Spaced punctures on third and fifth intervals.

The shape of the elytra in this species is very elliptic.

Boheman's description of his "*melancholicus*" might apply to this insect in most details, but his dimensions, 6 $\frac{3}{4}$ mm. long by 3 mm. wide, depicts an extraordinarily short, squat insect unlike any *Hypolithus* I have yet met with. Péringuey's dimensions do not agree with those of the author, and it seems very doubtful whether he describes the same insect.

Hab. Salisbury, S. Rhodesia. Male and female examples received from the Rev. J. A. O'Neil.

I have a single male example of a very nearly-related species, from Nkusi River, Zululand, which is shaped almost exactly like "*dubius*"; it is, however, a little larger (8 mm. by 3 mm.), the ground-colour is a deeper jet-black, and it has no trace of iridescence; the labrum and mandibles are wholly black and there is no diffused reddish about the apex or base of prothorax, scutellum, or margins of the elytra. The striation and puncturation of elytra are coarser and there are well-defined spaced punctures on the third, fifth, and seventh intervals.

Hypolithus castaneus, sp. n.

Length $6\frac{1}{2}$ – $6\frac{3}{4}$ mm. ; width $2\frac{1}{4}$ – $2\frac{1}{2}$ mm.

Dark reddish brown, lateral margins of prothorax and elytra testaceous; antennæ, palpi, and legs (paler) testaceous yellow; labrum and epistome a shade lighter than ground-colour.

Head smooth or very faintly aciculate, frontal grooves obsolete.

Prothorax transverse, plane, more than one-third wider than long, widest above middle; as wide at apex as at base, front nearly straightly truncate, angles rounded and hardly produced, sides from angles briefly amplified, thence straightly, a little inwardly inclined to posterior angles which are subacutely right; base shallowly emarginate medially, median line and basal foveæ shallow, the latter coarsely, rugosely punctate, the rest of the disc more or less densely aciculate-plicate.

Elytra narrow, elongate, base confluent with prothorax, very little amplified below shoulder, thence nearly parallel for two-thirds the length, and gently, a little sinuately rounded to apices; depressed above, very deeply striate, the first two or three intervals more or less carinate, puncturation moderately dense and somewhat coarse. Seriate punctures on third, fifth, and seventh intervals.

The ampliation of prothorax below front angles is briefer than in "*dubius*" and the sides of elytra are parallel, not at all elliptic; the sculpture is much coarser throughout and colour different. There are seven examples before me for comparison, and the darkest among them is of only a slightly dusker tint of chestnut-brown than its fellows. It can therefore be safely concluded the coloration is not due to immaturity.

Hab. Salisbury, S. Rhodesia, from the Rev. J. A. O'Neil. It is evidently a common species.

Hypolithus propinquus, sp. n.

Length $6\frac{3}{4}$ – $7\frac{1}{2}$ mm. ; width $2\frac{1}{2}$ –3 mm.

Head and prothorax piceous to deep reddish brown; elytra (except epipleuræ, which are red) black, more or less obscurely iridescent; beneath deep reddish brown; antennæ, labrum, and palpi reddish testaceous; legs pale testaceous yellow. Sides of prothorax broadly, somewhat suffusedly margined with testaceous.

Head smooth or finely aciculate, shiny, frontal foveæ and transverse suture very fine.

Prothorax very transverse, more than one-third wider than long, apex truncate and convex medially, a little sinuate and very declivous to frontal angles, which are briefly rounded and produced; sides gently rounded to about middle, straightly and very slightly contracted to hind angles, which are obtusely right; base nearly $\frac{1}{4}$ wider than apex, shallowly emarginate medially, more or less finely, transversely aciculate on disc, densely, confluent punctate about sides and broad, shallow basal depressions; median line fine and short, reaching neither apex nor base.

Elytra truncate, hardly wider than prothorax at base, humeral angles sharply quadrate, very briefly widened below, sides straight and parallel to beyond middle, then gently, hardly sinuately rounded to apices; nearly plane above, moderately deeply striate, intervals densely punctulate and quite plane. Spaced punctures on third, fifth, and seventh intervals.

Closely allied to *H. castaneus*, mihi. Prothorax a trifle more transverse, otherwise similar; elytra equally parallel-sided, but less narrowly elongate, and the puncturation a little finer. Apart from the colour, which is quite different, the iridescence is usually less obscure, though as in *castaneus* it is sometimes altogether wanting.

The dimensions of "*propinquus*" agree well with those of Péringuey's (not Boheman's) "*melancholicus*," and it is quite possible that it may be that insect, especially as it appears to be a common insect with a fairly wide coastal range. Péringuey, however, states that there are only seriate punctures on the third and faintly on the fifth. In all the examples before me these punctures are present on intervals 3, 5, and 7, though sometimes they are not very conspicuous on the two latter intervals.

Hab. Natal Coast; Delagoa Bay and Inhambane (Mozambique Prov.). A common species. Examples from Mozambique are a little more robust and more roughly sculptured.

Hypolithus turbatus, Pér. ?

I have four specimens which agree fairly well with the description of above (*vide* Ann. S. Afr. Mus. vol. v. p. 279), but they are considerably smaller, *i. e.* $6\frac{3}{4}$ mm. long by $2\frac{1}{4}$ mm. wide. Those of "*turbatus*" are given as $7\frac{1}{2}$ mm. long by $2\frac{3}{4}$ mm. wide.

The specimens before me are auescent shiny and obscurely iridescent in the males; those which I take to be females show no iridescence, and the elytral margins are only obscurely and narrowly bordered with testaceous red. Three out of four of these have remote punctures on intervals 7, as well as on 3 and 5, but they are very faintly defined.

The type or types from which "*turbatus*" was described were collected by Dr. (then Mr.) G. A. K. Marshall at Salisbury, S. Rhodesia, and those now before me are all from the same locality, collected by the Rev. J. A. O'Neil.

Another ? distinct species from the same locality of the same size and shape is only differentiated from "*turbatus*" by details of the sculpture and coloration, but it will require much more material than I have now to decide upon its relationship to the above.

XLIH.—*Exotic* Muscaridæ (*Diptera*).—VII.*

By J. R. MALLOCH, Washington, D.C.

Subfamily PHAONINÆ.

Mydæa contraria (Walker).

Stein placed this species in his key to the Oriental species of *Mydæa*, but gave it the new name *spinipes*, with *contraria*, Walker, in parenthesis. He did not, so far as I know, describe the species. The specimens I have before me are in poor condition, but the species is evidently very close to typical *Mydæa*. The fourth vein is slightly curved forward apically, and in no respect does it differ very much from *Myiospila*, R.-D., the nearest relative to *Mydæa*. Without better material of both sexes I do not care to give a definite opinion as to the generic position.

The hind femora have very short, closely-placed bristles on the antero-ventral surface apically.

Locality, Singapore (*H. M. Ridley*).

Helina rufithorax (Stein).

A rather conspicuous species, with black head and abdomen and the thorax reddish-yellow with a black mark on metanotum. In the female before me the femora are

* For Part VI, see Ann. & Mag. Nat. Hist. (9) x., July 1922, pp. 132-144.